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NOTES

— ON —

HAWAIIAN FERNS.

Compiled from the works of

Hooker, Baker, Bailey and Others,

— BY —

LORENZO G. YATES.

Associate Member Victoria Institute, Etc.

PRICE, POSTAGE PREPAID, - - 50 CENTS.

Santa Barbara, Cal.:
PRINTED BY GEO. O. YATES.
1887.



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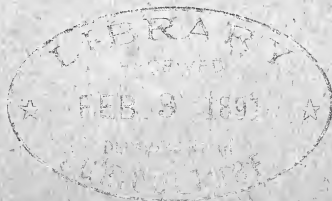
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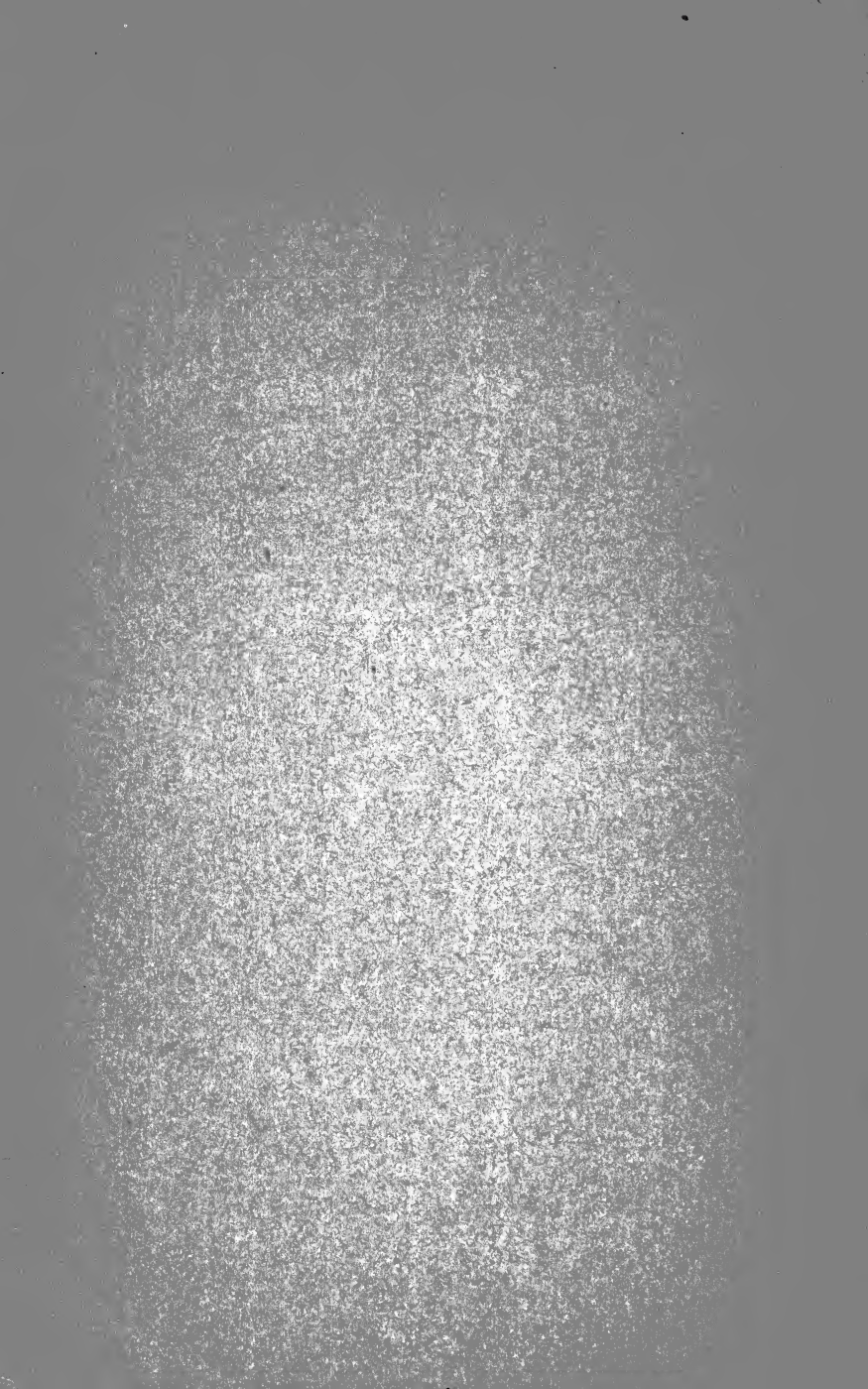
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PREFACE.

THE Hawaiian, or Sandwich, Islands, the most important Polynesian group in the North Pacific, consist of eight inhabited and four uninhabited islands in the North Pacific Ocean, lying between 18 deg. 55 min., and 22 deg. 2 min. north latitude, and 155 deg. and 161 deg. west longitude. They were discovered by Captain Cook in 1778, and were named Sandwich Islands in honor of the Earl of Sandwich.

The native name of the group is from the name of the largest island, Hawaii (formerly written Owhyhee).

The eight principal islands, with their areas, are as follows:

	Length, <i>miles.</i>	Breadth, <i>miles.</i>	Sq. mi.
Hawaii.....	90	74	3,950
Maui.....	48	30	620
Oahu.....	46	25	530
Kauai.....	25	22	500
Molokai.....	40	7	190
Lanai.....	17	9	100
Niihau.....	20	7	90
Kahoolawe.....	11	8	60

The four uninhabited islets are named Nihoa, Kaula, Lehua and Molokini.

The distance between the extreme points of the group is about four hundred miles. The highest point on the Islands is Mauna Kea, on Hawaii—13,900 feet high.

The Islands are situated in the track of the trade wind belt, and from their isolated position, present interesting and favorable localities for the study and collection of ferns. In many places, the trees, shrubs, rocks and soil, are so thickly covered by the different species of these delicate and beautiful plants as to impede the progress of travelers.

Miss Bird, in her "Six Months in the Sandwich Islands," says that "in some places the forest becomes an impenetrable mass from the abundance of the *Gleichenia Hawaiiense*," a stiff growing, wiry species, rarely seen in cultivation in this country. She also says that she collected seventeen species of ferns growing upon the prostrate trunk of a tree fern.

In other places, the filmy, feathery fronds of such ferns as *Trichomanes meifolium*, *Microlepia tenuifolia*, *Nephrolepis exaltata*, *Polypodiums* and tree ferns, add an indescribable charm and beauty to forest and landscape. The *Lygodiums*, or climbing ferns, cover the otherwise naked trunks of palms and other trees, where many species grow imbedded in moss.

Of the 129 species known to grow upon these islands, 10 species only are found growing in North America, five of which are found in California. Many of the others are restricted to certain islands, and on those islands to certain localities. It is said of the climate of this group that, although the temperature is remarkably equable, yet as many climates may be found as there are square leagues in the Islands.

On the windward side of the mountains, rain often falls to exceed two hundred inches in a year, while the leeward side is generally arid and comparatively barren. One peculiarity among the great number of ferns, is the scarcity of species of *Adiantums* or Maiden Hair ferns, one species only being known—*Adiantum capillus-veneris*.

The following list of the ferns of these Islands is intended as a check list and convenient reference for collectors who desire to know what species are to be found there.

The genera and species are alphabetically arranged, as being more convenient for reference than the ordinary method of arranging them—according to the accepted nomenclature and classification.

Hoping this little manual will be of as much service to other fern collectors as it would have been to the writer, had some one else prepared it and he could have availed himself of their labors, it is respectfully submitted.

LORENZO G. YATES.

SANTA BARBARA, Cal., January, 1887.

ADDENDA.

Davallia Andersonii, *Mett.* Asplenium Fenzlianum, *Luers.*
Acrostichum Wauræ, *Luers.* Adiantum Bennettii, *Curruth.*
Asplenium crenato-lobatum, *Baker.*

HAWAIIAN FERNS.

The page numbers, after the names of the species, refer to Hooker & Baker's *Synopsis Filicum* (latest edition). Species which are doubtfully credited to the Hawaiian group are marked thus *.

ACROSTICHUM.

A. CONFORME, *Sw.* (p. 401).—*A. æmulum*, *Kaulf.*

A small variety, with narrow fronds. Found at an elevation of 4,000 to 8,000 feet.

A. GORGONEUM, *Klf.* (p. 416)—*Aconiopteris gorgoneum*, *Presl.*

At an elevation of 2,000 to 4,000 feet. Found also in the Society Islands.

A. MICRADENIUM, *Fee* (p. 400)—*Elaphoglossum nitidum*, *Brack.*—*A. pellucidum*, *Gauâ.*

Among mosses, on tree trunks, at an elevation of 3,000 to 4,000 feet. Peculiar to the Hawaiian Islands.

A. RETICULATUM, *Klf.* (p. 421)—*Chrysodium reticulatum*, *Fee.*

At an elevation of 1,500 to 3,000 feet. Peculiar to the Hawaiian Islands.

A. SQUAMOSUM, *Sw.* (p. 411).

At an elevation of 1,500 to 8,000 feet.

NOTE.—All the Hawaiian *Acrostichums* are epiphytic.

ADIANTUM.

A. CAPILLUS-VENERIS, *L.* (p. 123).

On banks or rocks overhanging running water.

 ASPIDIUM.

A. ACULEATUM, *Sw.* (p. 252).

At an elevation of 5,000 to 8,000 feet.

A. ARISTATUM, *Baker* (p. 255).

At an elevation of 5,000 to 7,000 feet.

A. (Cyrt.) BOYDLÆ, *Eaton*.

In the valleys of Oahu, at an elevation of 80 to 100 feet.

A. (Sagenia) CICUTARIUM, *Baker* (p. 299).

On damp rocks near water, and in caves. *A. apiifolium*, *Hk.* and *Arn.*, is a variety of this species (?).

A. CYATHEOIDES, *Klf.* (p. 293).—*Nephrodium cyatheoides*.

In damp places, at various altitudes.

A. (Cyrt.) FALCATUM, *Sw.* (p. 257).

In forests, at an elevation of 500 to 3,000 feet.

A. (Last.) FELIX-MAS, *Rich.* (p. 272).

At an elevation of 4,000 to 6,000 feet.

Var. *paleaceum*(?) *M.* and *B.* At an elevation of 7,000 to 8,000 feet.

A. (Last.) GLABRUM, *E. B.* (p. 278), and var. *hirsutum*, *E. B.*

In forests, at an elevation of 4,000 to 6,000 feet. Peculiar to the Hawaiian Islands.

A. (Last.) GLOBULIFERUM, *Hk.* (p. 269).

Steep sides of ravines and gulches, at an elevation of 500 to 3,000 feet; sometimes growing eight feet in length. Peculiar to the Hawaiian Islands.

A. (Polyst.) HALEAKALENSE, *E. B.*

At an elevation of 7,000 to 9,000 feet.

A. HUDSONIANUM, *Brack.* (p. 294).—*Nephrodium truncatum*, *Presl.*

ASPIDIUM (Last.) LATIFRONS, *Hk.* (p. 282).

In deep gulches, at an elevation of about 500 feet.

A. (Last.) RUBIGINOSUM, *Hk.* (p. 280).—*Nephrodium rubiginosum*.

At an elevation of 5,000 to 7,000 feet. Peculiar to the Hawaiian Islands.

A. (Last.) SQUAMIGERUM, *Hook.* and *Arn.* (p. 280).

In deep gulches, at an elevation of about 500 feet. Peculiar to the Hawaiian Islands.

A. UNITUM, *R. Br.* (p. 289).—*Nephrodium unitum*.

In wet places and in running water, at an elevation of 200 to 3,000 feet. This species is found in Florida and many other places.

ASPLENIUM.

A. ACUMINATUM, *Hk.* and *Arn.* (p. 218),

In dense forests. Peculiar to the Hawaiian Islands.

A. ADIANTUM-NIGRUM, *Linn.* (p. 214).

Var. *gaudi-chaudianum*, *Hk.*

At an elevation of 500 to 6,000 feet.

A. AFFINE, *Swetz.* (p. 215).—*A. spathulatum*, *J. Sm.*

At an elevation of 3,000 to 4,000 feet.

A. ARNOTTII, *Baker* (p. 240).—*A. Sandwichianum*, *Mett.*—*A. diplazioides*, *Hk.* and *Arn.*

At an elevation of 3,000 feet, with *A. latifolium*. Peculiar to the Hawaiian Islands.

A. (Athy.) ASPIDIODES, *Schl.* (p. 228).—*A. multisectum*, *Brack.*

At an elevation of 2,000 to 4,000 feet. The form called *multisectum* is found only on the Island of Kauai.

A. (Athy.) BREVISORUM, *Wall.* (p. 228.)

One of the most common on the Islands.

ASPLENIUM CAUDATUM, *Forst.* (p. 209.)

Doubtfully distinct and difficult to distinguish from *A. falcatum*. In forests, at an elevation of 500 to 5,000 feet.

A. CONTIGUUM, *Kaulf.* (p. 205).

At an elevation of 400 to 2,000 feet.

A. CUNEATUM, *Lam.* (p. 214).

At an elevation of about 5,000 feet.

A. DEPARIOIDES, *Brack.* (p. 226).

In deep gulches, near streams. Peculiar to the island of Oahu.

A. DISSECTUM, *Brack.* (p. 214).

At an elevation of 5,000 to 7,000 feet. Peculiar to the Hawaiian Islands.

A. ENATUM, *Brack.* (p. 205).

A curious fern, varying in form; sometimes very proliferous on the fronds. Peculiar to the Hawaiian Islands.

A. EXTENSUM, *E. B.*

At an elevation of 5,000 to 6,000 feet.

A. FALCATUM, *Lam.* (p. 208).—*A. spathulinum*, *J. Sm.*

At an elevation of 2,000 to 4,000 feet. This fern is one of the exotic ferns most extensively cultivated in Santa Barbara, Cal.

A. FURCATUM, *Thunb.* (p. 214).—*A. præmorsum*, *Sw.*

At an elevation of 500 to 8,000 feet.

A. GRAMMITOIDES, *Hk.* (p. 491).—*Dipladenia Solandri*, *Carruth.*

A. HORRIDUM, *Kaulf.* (p. 211), and variety.

At an elevation of 1,500 to 2,000 feet, in forests; also found in Samoa and Java

ASPLENIUM LATIFOLIUM, *Don.*

E. Bailey gives this species as found at an elevation of 3,000 feet.

A. LOBULATUM, *Mett.* (p. 486).

In forests, at an elevation of 500 to 5,000 feet.

A. LUNULATUM, *Sw.* (p. 202).—A. erectum, *Bory.*

At an elevation of 2,000 to 3,000 feet. According to E. Bailey, var. proliferum of this species is A. parvonicum, *Brack.*, and is universally distributed throughout the tropics.

A. MONANTHEMUM, *Linn.* (p. 197).

At an elevation of 7,000 to 8,000 feet.

A. MULTISECTUM, *Brack.* (p. 228).—A. scandicinum, *Presl.*; also referred to as a variety of A. aspidioides.

Found only on Kauai, at an elevation of 2,000 to 4,000 feet.

A. (Thamnopteris) NIDUS, *L.* (p. 190).

The Birds-nest Fern; at an elevation of 500 to 3,000 feet.

A. NITIDUM, *Swetz.* (p. 215).

A. OBTUSATUM, *Forst.* (p. 207)—var. obliquum, *Hk.*, or perhaps a small form of A. falcatum.

A. PARVONICUM, *Brack.* See A. lunulatum (p. 202).

A. PERSICIFOLIUM, *J. Sm.* (p. 202).

Found only on the Island of Kauai and in the Philippine Islands. Very prolific on the fronds.

* A. PROLIFERUM—A. lunulatum, var. (?).

A. PSEUDO-FALCATUM.

A. RESECTUM, *Sm.* (210).

On steep, moist slopes, in shade, near running water, at an elevation of 300 to 1,000 feet.

ASPLENIUM RHOMBOIDEUM, *Brack.* (p. 195).

A densely tufted fern; at an elevation of 7,000 feet.

A. SANDWICHIANUM.—A. *Arnottii*, *Bkr.*(?).

A. SUBPINNATIFIDUM, *Hk.*—A. *lunulatum*, var.

A. TRICHOMANES, *L.* (p. 196).

At an elevation of 5,000 to 7,000 feet.

A. VARIANS, *Hk.* and *Gr.* (p. 216),

At an elevation of 3,000 to 4,000 feet.

BLECHNUM.

*B. SOULETIANUM, *Gaud.*

According to E. Bailey, at an elevation of 2,000 to 4,000 feet.

BOTRYCHIUM.

B. DAUCIFOLIUM, *Wall.*

Grows in the ground, in forests, at an elevation of 500 to 2,000 feet.

CIBOTEUM. (Tree Ferns.)

C. CHAMISSOI, *Hk.* and *Bkr.* (p. 50).

At an elevation 1,000 to 3,000 feet; on the Island of Oahu.

C. GLAUCUM, *Sm.* (p. 49).

At the same elevation as the last named species. Peculiar to the Island of Oahu.

CYSTOPTERIS.

C. FRAGILIS, *Bernh.* (p. 103).

At an elevation of about 1,000 feet. An almost universally distributed fern.

DAVALLIA.

D. (Stenoloma) ALEXANDRI, *Hill.*

Found on the Island of Maui, at an elevation of 3,000 to 4,000 feet.

DAVALLIA (*Microlepia*) *HIRTA*, *Kaulf.* (p. 100).

This is a beautiful fern, much used for decoration. At an elevation of 200 to 6,000 feet.

D. (*Stenoloma*) *MANNII*, *Eaton* (p. 471).

On the Island of Kauai

D. (*Odontoloma*) *REPENS*, *Desv.* (p. 93).—D. *hemiptera*, *Bory.*

At an elevation of 3,000 feet, on trunks of trees.

D. (*Micro.*) *SPELUNCÆ*, *Baker.* (p. 100).

At an elevation of 1,500 to 3,000 feet. Has a wide geographical range in other countries.

C. (*Micro.*) *STRIGOSA*, *Swartz* (p. 98).—D. *polypodioides*—D. *proxima*, *Blume.*

At an elevation of 3,000 to 8,000 feet.

D. (*Steno.*) *TENUIFOLIA*, *Swtz.* (p. 102).

A finely cut and beautiful species, found below 3,000 feet elevation, in various places. At an elevation of 5,000 feet in India.

DEPARIA.

D. *PROLIFERA*, *Hk.* (p. 55.).—D. *macræi*, *H.* and *G.*

On the Island of Oahu.

DOODIA.

D. *MEDIA*, *R. Br.* (p. 190).

At an elevation of 2,000 feet.

GLEICHENIA.

G. *DICHOTOMA*, *Willd.* (p. 15).

At an elevation of 1,000 to 3,000 feet. This is one of the species which grows so rank, in places, as to impede traveling. It is widely distributed, and has many synonyms.

GLEICHENIA HAWAIIENSE, *Hook.* (p. 14).—*Mertensia Hawaiiensis*, *Brack.*

At an elevation of 3,000 to 4,000 feet. Peculiar to the Island of Hawaii.

G. LONGISSIMA, *Blume.* (p. 12).—*Mertensia glabra*, *Brack.*—*G. excelsa*, *J. Sm.*

At an elevation of 2,000 to 3,000 feet.

GYMNOGRAMME.

G. JAVANICA, *Blume.* (p. 381).

A noble fern, but very different in appearance from the American species of the genus.

HYMENOPHYLLUM.

H. BALDWINI, *Eaton.*

Found in a little valley on the Island of Oahu, at an elevation of 2,500 feet, by D. D. Baldwin.

H. LANCEOLATUM, *Hk. and Arn.* (p. 64).

At an elevation of 3,000 feet. Peculiar to the Hawaiian Islands.

H. OBTUSUM, *Hk. and Arn.* (p. 63).

Peculiar to the Island of Oahu.

H. RECURVUM, *Gaud.*

At an elevation of 2,000 to 3,000 feet.

LINDSAYA.

L. ERECTA, *Hk.* (p. 113).—*Diellia falcata*, *Breck.*

Peculiar to the Hawaiian Islands.

L. FALCATA, *Hk.* 113).

Peculiar to the Hawaiian Islands.

L. PUMILA, *Hk.* (p. 112).

In gulches, in moist places. Peculiar to the Hawaiian Islands

MARATTIA.

M. DOUGLASII, *Baker* (p. 441).—*Gymnotheca Douglasii*.

Grows in rich soil, at an elevation of 3,000 to 5,000 feet. This peculiar fern has a very sweet, fleshy, nutritious root or base, which was used as food by the natives, and is peculiar to the Islands.

NEPHROLEPIS.

N. EXALTATA, *Schott.* (p. 301).

This species grows in a great variety of situations and altitudes; it consequently presents a variety of forms, and has been called by a variety of names.

OPHIOGLOSSUM.

O. CONCINNUM, *Brack.* (p. 445).—*O. nudicaule*, *L.*, var.]

On grass covered sand hills, near the sea.

O. PENDULUM, *L.* (p. 446).

On tree trunks, near the ground, in damp, shady bottoms of deep valleys.

PELLÆA.

P. TERNIFOLIA, *Fee.* (p. 148).

In crevices of rocks, at an elevation of 5,000 to 6,000 feet; also in tropical America, from Texas to Chili.

POLYPODIUM.

P. ABIETINUM, *Eaton.*

A delicate, handsome species, found growing on trees, on the Islands of Kauai and Oahu, at an elevation of 3,000 feet.

P. ADENOPHORUS, *Hk. and Arn.* (p. 328).

On tree trunks, at an elevation of 3,000 to 5,000 feet. Found also in Peru, South America

P. CRINALE, *Hk. and Arn.* (p. 311).

At an elevation of 2,000 to 3,000 feet. Peculiar to these islands.

POLYPODIUM (Phegopteris) HILLEBRANDI, *Hk.* (p. 311).

Luxuriant form of *P. tamerascium* (?). At an elevation of 3,000 feet. Peculiar to the Hawaiian Islands.

P. HONOLULENSIS, *Hk.* [Specimen from D. D. Baldwin.]

P. HOOKERI, *Brack.* (p. 319.)

On trunks of trees, at an elevation of 3,000 to 5,000 feet. Var. *stipatum* grows in the ground, in tufts, on steep banks.

P. HYMENOPHYLLOIDES, *Kaulf.* (p. 337).

On trunks of trees, at an elevation of 3,000 to 4,000 feet. Peculiar to the Hawaiian Islands.

P. KERAUDRENIANUM, *Gaud.* (p. 313).

This lovely trailing fern, with fronds from twelve to fifteen feet in length, is found at an elevation of from 500 to 3,000 feet. Grows well under cultivation. May be seen in the writer's conservatory.

P. LANCEOLATUM, *Linn.* (p. 356).

In damp localities, below 3,000 feet.—E. Bailey.

P. LINEARE, *Thunb.* (p. 454). [Specimen from D. D. Baldwin.]

P. MICRODENDRON, *Eaton.* [Specimen from D. D. Baldwin.]

P. MYRIOCARPUM, *Hook.* (p. 358). (See *P. Pellucidum*.)

P. PELLUCIDUM, *Kaulf.* (p. 334).

At an elevation of from 1,000 to 5,000 feet, on trees. Var. *myriocarpum* grows in the ground. Peculiar to the Hawaiian Islands.

P. PSEUDO-GRAMMITIS, *Gaud.* (p. 320).

At an elevation of 2,000 to 3,000 feet, in imbedded moss, on trees. Peculiar to the Hawaiian Islands.

POLYPODIUM PUNCTATUM, *Thun.* (p. 312).

At an altitude of 3,000 to 6,000 feet.

P. SANDVICENSE, *Hk.* (p. 312).—P. stegnogrammoides, *Baker.*

—P. microdendron, *Eaton.*

P. SARMENTOSUM, *Brack.* (p. 327).

On tree trunks, at 3,000 to 5,000 feet elevation. Peculiar to the Hawaiian Islands.

P. SERRULATUM, *Mett.* (p. 323).

Grows on branches of trees, at an elevation of 4,000 to 5,000 feet. This, with its variety cristatum, is among our most common greenhouse ferns.

P. SPECTRUM, *Kaulf.* (p. 361).

In damp forests, at 500 to 3,000 feet elevation. Peculiar to the Hawaiian Islands.

* P. STENOGRAMMOIDES, *Baker* (p. 317).—P. microdendron, *Eaton.*

Peculiar to the Hawaiian Islands.

P. SUBPINNATIFIDUM, *Bl.* (p. 324).

Found also on the Island of Java.

P. TAMARISCINUM, *Kaulf.* (p. 338).

On tree trunks and branches, at an elevation of 3,000 to 5,000 feet. A varying species which has several synonyms.

P. UNIDENTATUM, *Hk.* and *Arn.* (p. 310).

At an elevation of 1,000 to 3,000 feet. Peculiar to the Hawaiian Islands.

* P. UNISORUM, *Baker.*

On one of the mountains of Kauai.

PTERIS.

P. AQUILINA, *L.* (p. 162).

At an elevation of 500 to 4,000 feet and upwards. Varies much in growth, being found from three inches to 12 feet in height.

PTERIS CRETICA, *L.* (p. 154).

At an elevation of 3,000 to 7,000 feet.

P. DECIPIENS, *Hk.* (p. 167), and var. *intermedia*.

At an elevation of 300 to 2,000 feet, in Wailuku valley, Island of Maui. Peculiar to the Hawaiian Islands.

P. DECORA, *Brack.* (p. 167).

Found about Lahainaluna, Maui. Peculiar to the Islands.

P. EXCELSA, *Gaud.* (p. 159).

In the bottom of ravines, at an elevation of 300 to 3,000 feet.

P. IRREGULARIS, *Kaulf.* (p. 158).

Peculiar to the Hawaiian Islands.

* *P. QUADRIAURITA*, *Retz.* (p. 158).

P. REGULARIS, *E. B.*

SADLERIA. (Tree Ferns.)

S. CYATHEOIDES, *Kaulf.* (p. 187).

Found in the Hawaiian Islands and Sumatra, at an elevation of 2,000 to 3,000 feet.

S. PALLIDA, *Hk.* and *Arn.* (p. 187).

At an elevation of 3,000 to 4,000 feet.

S. SQUARROSA, *Gaud.* (p. 187).—*Blechnum polystichoides*, *Brack.*

At an elevation of about 5,000 feet.

SCHIZEA.

SCHIREA AUSTRALIS, *Gaud.* (p. 428).

In the ground, in damp, elevated situations.

TRICHOMANES.

T. APIIFOLIUM, *Presl.* (p. 86).—*T. meifolium*.

In damp, shady places, at 2,000 to 3,000 feet elevation.

TRICHOMANES FILICULA, *Bory.* (p. 81).

* T. HUMILE, *Foster.*—T. pyxidiferum, var.

* T. INTRAMARGINALE, *Hk.* and *Gr.*—T. pyxidiferum.

* T. LUSCHNATIANUM, *Presl.*—T. radicans.

T. MEIFOLIUM, *Hk.* (See T. apiifolium.)

T. PARVULUM, *Poir.* (p. 75).

T. PYXIDIFERUM, *L.* (p. 81).

T. RADICANS, *Sut.* (p. 81).

A widely distributed species; grows in damp woods, at an elevation of 300 to 2,000 feet. A variable plant.

T. SPECIOSUM, *Willd.*

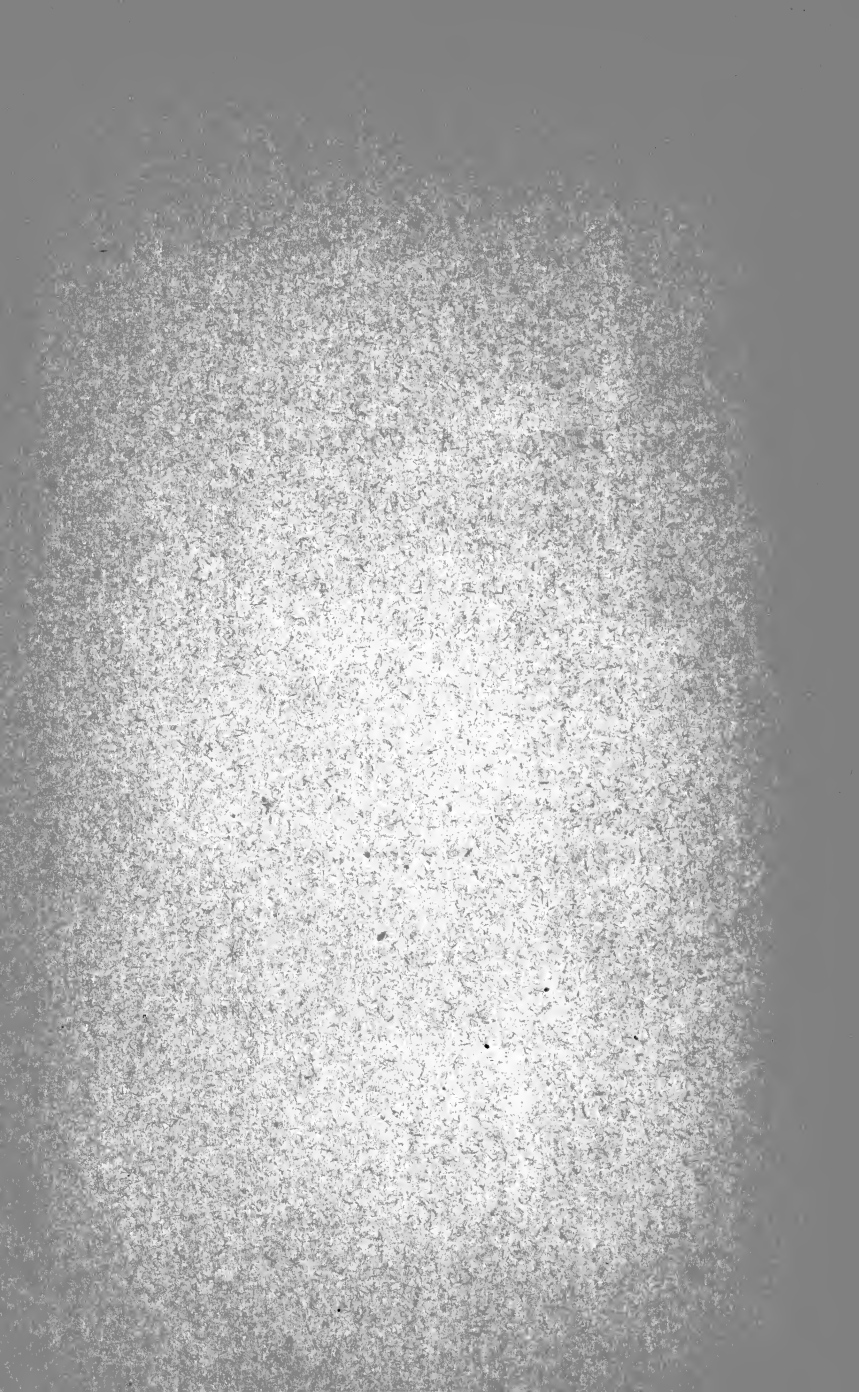
Perhaps a variety of T. radicans.

VITTARIA.

V. ELONGATA, *Sw.* (p. 395).

Grows in large forks of tree trunks, at from 500 to 2,500 feet elevation.





IN PREPARATION.

THE FERNS OF CEYLON.

With extracts from the manuscript
notes of the late Dr. Thwaites,
and the published works of
Hooker, Baker and Wall.

By Lorenzo G. Yates.

— ALSO —

LIST OF ALL KNOWN FERNS.

With synonyms, habitat, page refer-
ences to Synopsis Filicum, Etc.

BY LORENZO G. YATES

The enumeration of new species by J. G. Baker.

Any information in relation to new species
and varieties, new localities or other matters
of importance will be valued and properly
credited.